VU and VUmc operate a common Energy Center CCE. CCE provides electricity, heat and cold to university and hospital, mainly produced by a gas fired Combined Heat and Power Plant (CHP). CCE buys green electricity, in case electricity demand exceeds CHP capacity.

CCE is preparing a Masterplan for the energy supply of the Campus. The strategy is to diminish gas use step-by-step, with the ultimate goal to have an energy supply based on sustainable sources. Applied research by Ma-students will help to reach this goal.

Daily supervision will be by the CCE Energy Coordinator Rooske Gaal.

1. Roadmap to a climate–neutral energy supply of the VU

On behalf of VU and VUmc, CCE is preparing a Masterplan for future energy supply. The intention is to achieve a climate-neutral energy supply in the long run (e.g. around 2050). For the next 15 years, the major part of electricity, heat and cold will be produced by the VU-owned gas fired Combined Heat and Power Plant (CHP). How to prepare for the future, considering present investments and the overarching demand for continuous supply of emergency power?

Before steps can be taken to develop a roadmap, a proper inventory is needed about “hard” and “soft” boundary conditions. What are technical and financial CCE obligations, what are present agreements between VU, VUmc and CCE? Next, a strategic perspective has to be developed. This strategy must include both demand and supply management. As “negawatts” are in general most cost-effective and sustainable, what strategies are available to diminish energy demands? What technical devices are available, especially in new Campus buildings? What can we expect from behavioural changes? As for the supply side, CCE production becomes more and more intertwined with ZuidAs district heating and cooling. Should VU keep stand-alone facilities, or is the best strategy to integrate with district systems? The Master Thesis will result in an advice to the CCE, as an input to their Masterplan.

Current research questions are: 1) An inventory of hard and soft limitations to future energy supply of the VU; 2) Inventory and assessment of future strategies to lower energy use and to increase green energy supply; 3) Strategic advice to CCE on the Energy Masterplan. Focus in the thesis will be on step 2.

This thesis combines technical expertise with socio-economic expertise. Because of contacts with VU departments, there is a slight preference for Dutch speaking candidates.